WAGE POLICY PATTERNS AT THE FIRM LEVEL AND VULNERABLE EMPLOYEES

Francesca Sgobbi

DIMI,University of Brescia (I)

The research question

The literature $\Rightarrow$ the risk of getting caught into a disadvantage group of the labour market is larger for more vulnerable categories of employees (e.g. younger workers or women)

Hp $\Rightarrow$ wage policy at the firm level is a significant driver of segregation into disadvantaged employment groups

A classification of wage policy models at the firm level
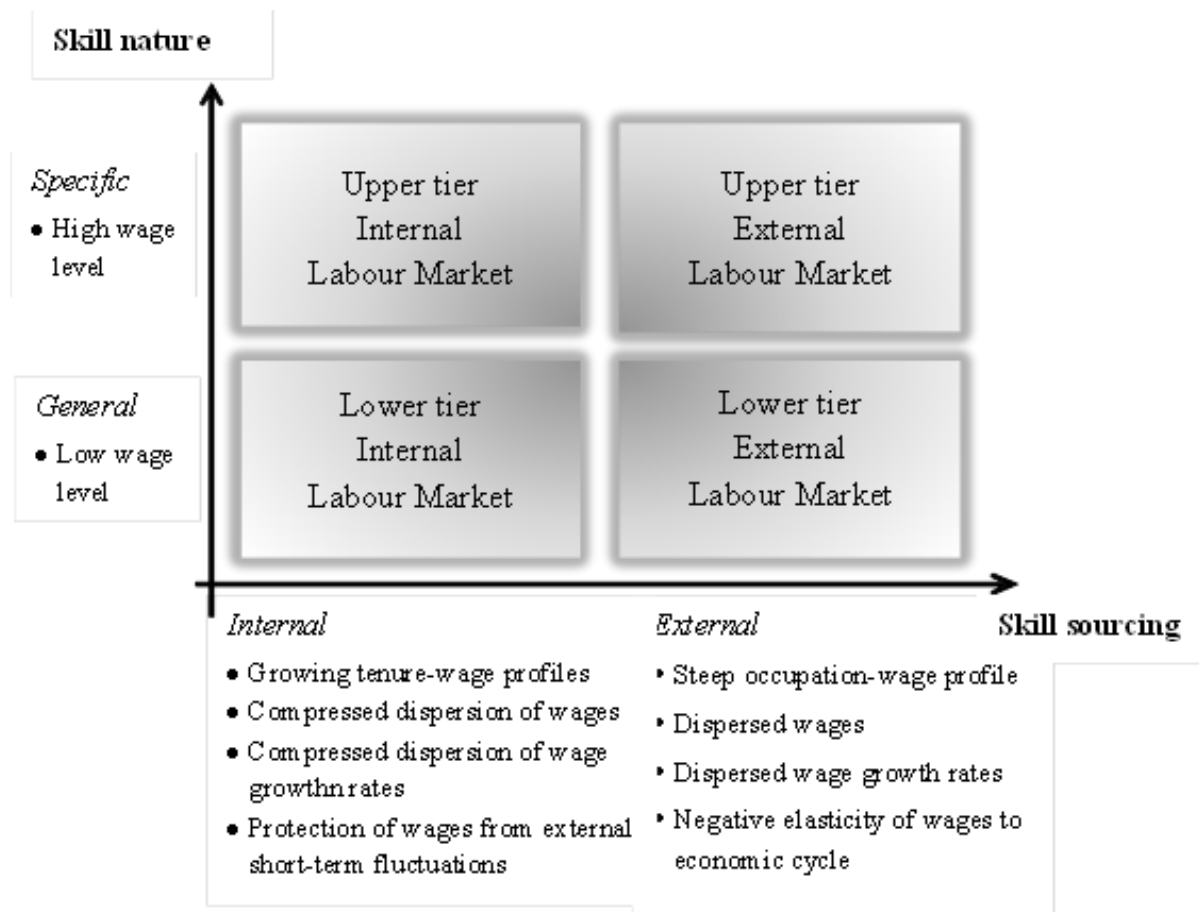
The data/1

## WHIP (Work Histories Italian Panel)

A random sample of the archives of the Italian Institute for Social Security (INPS) that records the compulsory social allowances paid by employers for their employees

Matched employer-employee data from an administrative source

A dynamic panel including about 862,000 employment relationships held by about 350,000 individuals between 1985 and 2004

The data/2

- Pooled firm-year observations between 1990 and 2004 with their matched employees

- above 500 employees

- at least 30 valid employment relationships per firm-year

| 1985 | ... | 1988 | 1989 | **1990** | … | 1995 | 1996 | **1997** | … | 2002 | 2003 | **2004** |
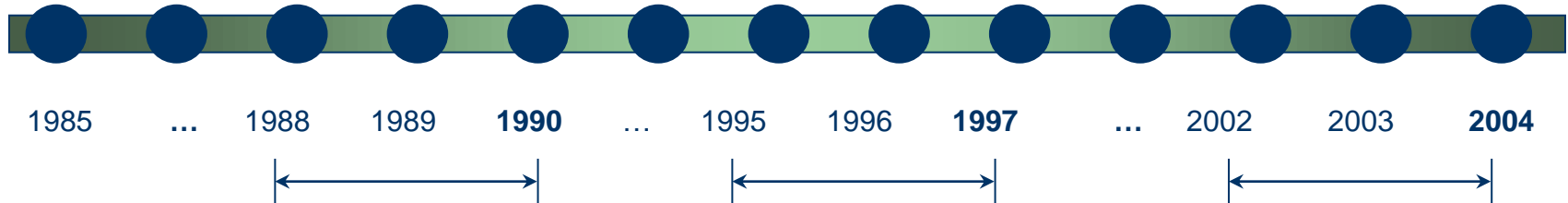
1988 info on firms observed in 1990 to characterise the dynamics of wage policy

1995 info on firms observed in 1997 to characterise the dynamics of wage policy

2002 info on firms observed in 2004 to characterise the dynamics of wage policy

The data/3

Year	Selected firms per year	Observed employees per year	Total employment at selected firms
1990	126	12,697	1,098,300
1991	123	12,559	1,105,300
1992	118	12,263	1,077,100
1993	114	11,512	1,017,100
1994	121	11,699	1,039,200
1995	127	11,861	1,053,600
1996	131	11,907	1,054,300
1997	129	11,641	1,015,400
1998	131	11,578	1,024,400
1999	146	11,610	1,070,000
2000	146	11,440	990,331
2001	148	12,012	1,022,900
2002	150	12,589	1,047,400
2003	148	12,208	1,021,800
2004	156	12,415	986,254
Total	2,014	179,991	15,623,385

The data/4

	Mean	Std. Dev.
Firm size [employees]	7,757.43	11,757.18
Workforce age [years]	40.00	4.00
Gross weekly wage [€, base=2004]	589.43	147.25
Employees with permanent contract [%]	94.05%	
Part-timers [%]	11.90%	
Female employees [%]	31.12%	

The steps of the empirical analysis

1. Firm clustering to identify their wage policies

2. Firm wage policy and employee labour market outcomes

The cluster analysis: Input variables

- Firm level data
- De-inflated hourly wages
- Calculation of relative wage level and wage growth position based on the whole WHIP db for the observed years

	Variable	Description
Wage level	Wage_level	Relative wage position weighted by occupation
Wage structure	Gini_wage_level	Gini index of gross weekly wage dispersion
	Occupation_wage_correlation	Spearman correlation between occupation and weekly gross wage
	Tenure_wage_correlation	Pearson correlation between tenure and weekly gross wage
	Jobgrades_per_100_employees	Number of job grades observed per 100 employees
Wage dynamics	Wagegrowth_level	Relative wage growth weighted by occupation (2 year lag)
	Gini_wage_growth	Gini index of gross weekly wage growth dispersion (2 year lag)
	Wage_elasticity	Elasticity of wages to regional unemployment rate (2 year lag)

The cluster analysis: Outputs

- Hierarchical cluster analysis with Ward's linkage

- Identification of 4 clusters of firms following different wage policies

		Internal vs. External skill sourcing	
		Internal Labour Mkt	**External Labour Mkt**
General vs. Specific skills	**Upper tier**	557 firms	313 firms
	Lower tier	428 firms	714 firms

The cluster analysis: Outputs

	Lower tier ILM	Upper tier ILM	Upper tier ELM	Lower tier ELM
Wage_level	0.073	1.083	0.626	0.429
Gini_wage_level	0.142	0.138	0.170	0.221
Occupation_wage_correlation	0.387	0.363	0.169	0.155
Tenure_wage_correlation	0.561	0.529	0.514	0.695
Jobgrades_per_100_employees	12.730	10.671	17.831	13.549
Wagegrowth_level	0.022	-0.044	0.278	-0.004
Gini_wage_growth	0.209	0.193	0.322	0.207
Wage_elasticity	1.117	-0.037	-0.880	-0.758

The cluster analysis: Outputs

	Lower tier ILM	Upper tier ILM	Upper tier ELM	Lower tier ELM
Mean employees by firm	6,032.4	10,572.5	4,500.3	8,034.7
Sector = Supplier dominated	5.0%	6.0%	16.0%	9.0%
Sector = Scale intensive	4.0%	6.0%	13.0%	8.0%
Sector = Specialised suppliers	9.0%	2.0%	8.0%	19.0%
Sector = Science based	4.0%	3.0%	14.0%	19.0%
Sector = Regulated services	34.0%	78.0%	24.0%	31.0%
Sector = Other services	44.0%	5.0%	24.0%	13.0%

Firm wage policy and employee labour market outcomes/1

- Is the wage policy of the firm a significant driver of wage dynamics?

- Does the wage policy of the firm impact differently on the wage dynamics of vulnerable employees?

(2SLS regressions)

Firm wage policy and employees labour market outcomes/2

	All	Firm stayers	Firm changers
Constant	5.866***	6.186***	5.684***
	(0.011)	(0.022)	(0.021)
UT_ILM_t_0	0.049***	0.056***	0.027***
	(0.003)	(0.003)	(0.010)
UT_ELM_t_0	0.011***	0.005	0.001
	(0.003)	(0.003)	(0.011)
LT_ILM_t_0	-0.006**	0.005*	-0.042***
	(0.003)	(0.003)	(0.009)
Firmstayer	-0.090***		
	(0.007)		
Observations	*71,350*	*64,123*	*7,227*
R-squared	*0.464*	*0.454*	*0.447*

2SLS regressions. Dependent variable: natural logarithm of gross weekly wage in (t0+5)
* Statistically significant at the .10 level; ** at the .05 level; *** at the .01 level. Robust standard errors in parentheses. Regression controls for tenure, squared tenure, gender, temporary employment, part time employment, occuation, firm size, work area, industry fixed and 9 fixed year effects. °Reference category: LT_ELM_t0 .

Firm wage policy and employees labour market outcomes/3

	All (1)	All (2)	Firm stayers	Firm changers
Constant	5.943***	5.942***	6.383***	5.773***
	(0.011)	(0.011)	(0.023)	(0.021)
UT_ILM_t_0	0.049***	0.043***	0.054***	0.058***
	(0.003)	(0.003)	(0.003)	(0.013)
UT_ELM_t_0	0.014***	0.007*	-0.004	0.008
	(0.003)	(0.004)	(0.004)	(0.014)
LT_ILM_t_0	0.003	0.002	0.014***	-0.039***
	(0.003)	(0.003)	(0.003)	(0.012)
Young_t_0	-0.103***	-0.117***	-0.114***	-0.148***
	(0.003)	(0.005)	(0.006)	(0.013)
Young_t_0*HT_ILM_t_0		0.007	0.003	-0.042**
		(0.007)	(0.007)	(0.020)
Young_t_0*HT_ELM_t_0		0.025***	0.036***	0.012
		(0.009)	(0.010)	(0.022)
Young_t_0*LT_ILM_t_0		0.039***	0.056***	0.034*
		(0.008)	(0.008)	(0.018)

2SLS regressions. Dependent variable: natural logarithm of gross weekly wage in (t0+5)
* Statistically significant at the .10 level; ** at the .05 level; *** at the .01 level. Robust standard errors in parentheses. Regression controls for tenure, squared tenure, gender, temporary employment, part time employment, occuation, firm size, work area, industry fixed and 9 fixed year effects..

Firm wage policy and employees labour market outcomes/4

	All (1)	All (2)	Firm stayers	Firm changers
	[…]	[…]	[…]	[…]
$Temp\_t_0$	-0.018***	0.011	0.012	-0.028
	(0.005)	(0.009)	(0.010)	(0.019)
$Temp\_t_0*UT\_ILM\_t_0$		-0.047***	-0.063***	-0.0247
		(0.012)	(0.012)	(0.027)
$Temp\_t_0*UT\_ELM\_t_0$		-0.004	-0.019	0.034
		(0.017)	(0.019)	(0.032)
$Temp\_t_0*LT\_ILM\_t_0$		-0.049***	-0.063***	-0.016
		(0.012)	(0.013)	(0.024)
	[…]	[…]	[…]	[…]

Firm wage policy and employees labour market outcomes/5

	All (1)	All (2)	Firm stayers	Firm changers
	[…]	[…]	[…]	[…]
Recentmaternity	-0.063***	-0.010***	-0.124***	-0.010
	(0.005)	(0.014)	(0.015)	(0.031)
Recentmaternity*UT_ILM_t_0		0.048***	0.064***	-0.070
		(0.016)	(0.017)	(0.043)
Recentmaternity*UT_ELM_t_0		0.008	0.005	0.034
		(0.022)	(0.025)	(0.048)
Recentmaternity*LT_ILM_t_0		0.052***	0.053***	0.037
		(0.016)	(0.018)	(0.037)
Recentpaternity	-0.003	-0.003	-0.018**	0.048
	(0.008)	(0.008)	(0.008)	(0.030)
	[…]	[…]	[…]	[…]

Firm wage policy and employees labour market outcomes/6

	All (1)	All (2)	Firm stayers	Firm changers
	[…]	[…]	[…]	[…]
Recentillness	-0.077***	-0.085***	-0.091***	-0.058***
	(0.002)	(0.004)	(0.004)	(0.012)
Recentillness*UT_ILM_t_0		0.039***	0.022***	-0.003
		(0.005)	(0.005)	(0.022)
Recentillness*UT_ELM_t_0		0.011	0.025***	-0.032
		(0.007)	(0.007)	(0.021)
Recentillness*LT_ILM_t_0		-0.013**	-0.021***	0.0053
		(0.005)	(0.005)	(0.016)

Concluding remarks

- Significant differences in the wage policy models adopted by firms

- The employer's wage policy is a significant determinant of wage dynamics. However, observed patterns are significantly differentiated between firm stayers and firm changers

- Firm-level wage policies matter for vulnerable segments of the labour market

- Potential developments…